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AUTHOR Nelson, Laurie
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ABSTRACT

A study explored the possibility of instructional influence on children's passage along a developmental spelling continuum. The spelling of a group of 28 children who received intensive phonics instruction their kindergarten year was contrasted with the spelling of 24 first-grade children instructed in word-based materials. Subjects were initially equated on the basis of several measures of early reading ability, including a spelling measure. Subsequently, only those children in the phonetic spelling stage were included in the analysis. Results indicated a trend toward accelerated correct short vowel spelling with consequences for long vowel spellings on the part of phonics-instructed kindergartners. The significant results raised three issues: (1) what was proposed as a "natural" developmental sequence may be heavily supported by how children typically learn to read; (2) the specific instructional influence shown may be less interesting than the general phenomenon that instruction can delimit how children learn words; and (3) the basic tenets of Charles Read and Edmund Henderson's work (Read, 1971; Henderson, 1980) seem unshaken by this evidence. In this way the results of the study potentially replicate the developmental spelling scheme. (One figure and one table of data are included; 15 references are attached.) (MG)

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Laurie Nelson

Department of Reading and Language

National College of Education

2840 Sheridan Road

Evanston, IL 60201

708-256-5150 x2391

The Influence of Phonics Instruction on Spelling Progress

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The Influence of Phonics Instruction on Spelling Progress

Introduction

In recent years, linguists, educational researchers, and classroom teachers have come to embrace a theory of early spelling development first advanced by Charles Read in 1971, in which children's spelling is initially dominated by their phonetic intuitions, and only later gives way to more acquired, conventional forms. Developmental spelling theory underwent subsequent refinement by Edmund Henderson and his colleagues at the University of Virginia (Beers & Henderson, 1977; Gentry, 1977; Henderson & Beers, 1980; Zutell, 1980); actual "stages" of development were posited and field tested in varied settings. These refinements suggested that most children pass through a succession of reasonably clear and identifiable stages en route to becoming proficient spellers. While evidence of these stages has been collected time and again, still lacking is research that tests the durability of this sequence in sharply defined instructional settings. The Read/Henderson findings are undoubtedly important, explaining how most children acquire English spelling; but do all children necessarily learn to spell in the specified sequence? And if not, what deviations occur?

In this paper, the possibility of instructional influence on this developmental spelling sequence is systematically explored. The spelling of a group of 28 children who received intensive phonics instruction their kindergarten year was contrasted with the spelling of

24 first grade children instructed in word-based materials. Subjects were initially equated on the basis of several measures of early reading ability, including a spelling measure. Subsequently, only those children in the "phonetic spelling stage" (defined below) were included in the analysis.

A precedent exists for suggesting instruction can influence how children treat and store words. Barr (1972, 1974-1975), DeLawter (1970), Elder (1971), and others have demonstrated the differential contributions of phonics and/or word-based instruction to children's word learning in reading. There are logical grounds therefore for suspecting instructional influence on spelling development.

Before turning to the actual study, it seems worthwhile to summarize the suggested developmental spelling sequence under examination here. This summary will orient the reader to the particular demands of English spelling with which young spellers must contend, and their initial strategies for recording sound. Following this, the phonics and word-based instructed children's spelling will be examined in detail against the developmental stage criteria. The working premise of this paper is that instruction <u>can</u> influence children's passage along a developmental spelling continuum.

A Summary of Developmental Spelling Stages

As children first come to writing they seem to produce "pretend spellings," using letters and other symbols to create messages perhaps only they can interpret. "Pre-spelling" productions might look like

this: CKRYELO, or MFTF44. Once children discover or are introduced to the alphabetic principle, they move from random marks to systematic selection of letters they think correspond to the sounds they are trying to capture, moving left to right across a word. Feet spelled F or FT is common at this beginning stage. A breakthrough seems to occur when children come to understand that a vowel exists in the middle of a word. According to Read (1971) and, separately, Beers and Henderson (1977), young children next enter a phonetic stage of spelling in which the beginning, middle, and end of a word are represented in their spelling attempts. Consonant boundaries (the first and last sounds in words) are recorded fairly reliably. In fact, the sounds we hear in most consonants can be traced to their correct letter-names (with some exceptions as when the /ʤ/ in junk is spelled GUNK). Long vowels, because they "say" their own letter-name, are also generally rendered correct (FET for feet; RIS for rice). Having assigned the alphabet letters a, e, i, o, and u the job of recording long vowel sounds, however, children at this stage could be at a bit of a loss when they go to record short vowel sounds, particularly given that children's operating spelling principle in the phonetic stage is that there is a one-to-one relationship between letters and sounds.

Importantly, Read (1971) discovered that children actually seem not to experience any confusion; instead they naturally, effortlessly record the short vowel sounds with the phonetically nearest long-vowel neighbor until such time as the correct short vowel pairings are learned. Thus, dress is spelled JAS or JRAS, rich is spelled REJ or

REH, and junk might be spelled JOK (the nearest long-vowel neighbor for /ɛ/ is the alphabet letter-name A; the nearest long-vowel neighbor for /ɪ/ is the letter-name E; and the nearest long-vowel neighbor for /ʌ/ is the letter O [Read, 1971]).

The third stage and final one of interest in this paper, the transitional stage, also represents a real advance in how children are thinking about words. Key here is the child's movement away from a one letter per sound spelling strategy. The child begins to grasp the pattern principle in English spelling (Henderson, 1980; Henderson & Templeton, 1986). Consequently, long vowels are marked, if incorrectly at times: the phonetic rendering of feet [FET] may now go to FETE; rice, once RIS may now be RIES. At this stage, according to Henderson, the correct short vowel pairings are learned, (presumably as a consequence of reading experience/instruction [Henderson, 1985]), and JRAS improves to DRES. Having summarized the spelling stages, let me turn to the present study.

Anomalies in Phonics-instructed Kindergartners' Spelling

The spelling data used in this study were actually collected as part of a larger project contrasting possible instructional influence on several early reading phenomena. These spellings were drawn from a working class, semi-rural, phonics-instructed kindergarten, and a low SES, word-based instructed first grade. The lists were given individually, four times over the year (September, December, February, and May). The list itself was adapted from Morris (1981). As the

author was collecting the spelling data, three patterns were noted in the phonics kindergarten, raising the possibility that perhaps the developmental spelling sequence outlined by Read and Henderson did not hold for all instructional settings.

First, I noticed the co-occurrence of correct short vowels (a transitional stage feature), with features Read and Henderson argued were benchmarks of the phonetic stage, like the J for the /dr/ in dress, or the H for the /tʃ/ in rich. [Note: at the phonetic stage the child tends to use a single letter to represent a consonant blend or digraph whose actual spelling must probably be learned through reading.] In other words, I noticed what was either an accelerated appearance of correct short vowels (dress = JES, rich = RIH), or the children were entirely skipping the nearest-long-vowel-substitution stage and going directly to correct short vowels as soon as they grasped that word middles required vowels. It might be said that correct short vowels pre-empted the short vowel substitutions characteristic of phonetic stage spellers in previous studies.

Second, in the one-to-one testing sessions used to garner the data from the children, I noticed specific instances of confusion as some of the more able youngsters tried to spell the words required of them. Emily, a kindergartner able to orally segment the spelling words easily as early as Time 2 (December 1), had learned some short vowel pairings (o and a). I had seen her apply short vowel knowledge in reading; she could look at cvc-patterned short vowel words (such as hit and bed) and say /h/-/ɪ/-/t/, and /b/-/ɛ/-/d/, for 7 out of 10 words, though she

never actually uttered these words as a unit. When spelling, she could orally isolate the vowel sound /ɛ/, but recording it eluded her. She spelled dress JR_S, indicating she could sequence the sounds but could not come up with a way to represent /ɛ/. Other short vowel spellings were: ST_G, for stick, B_G for beg, R__ for rich, and J_G for junk. Long vowel spellings were R_S for rice, and C_M for comb. In a couple instances, as she left a space for the vowel, she would utter the vowel sound and comment, "Let's see, what sound is that?" Her rudimentary knowledge of some short vowel pairings, evidenced in her unblended decoding, was not "in" well enough to surface in her short vowel spellings; yet instruction seemed to have moved her far enough away from letter-name intuitions to leave her also unable to spell long vowel sounds based on their letter names.

Then there was Lisa, who at Time 4, May (after all five short vowels had been instructed), "used up" the five vowel letters for the short vowels words, and was temporarily stumped over how to spell the long vowel words on the list. The first word on the list was feet. Lisa knew how to spell it, and when it came to spelling rice and comb, she spelled them RIIS and COOM. Her short vowel knowledge was so secure that she had to do something different for long vowels so she borrowed a marking system she had seen in feet to spell other long vowels. In general for these more able children, there seemed a heightened sensitivity for vowels at a stage earlier than I had witnessed in children from other instructional settings.

Third, I noticed several children spontaneously spelling some long

vowels with the same incorrect letter, time after time. I realized that having learned the correct short vowel pairings "early", (even perhaps having overlearned them), children in the phonetic stage of spelling were driven away from any natural inclination to use the alphabet letter-names to record the long vowel sounds in words (a la Read). Instead, they were using "reverse substitutions", going to the nearest-SHORT-vowel-neighbor to represent the LONG vowel sound whereas Read had discovered most young spellers going to the nearest-LONG-vowel-neighbor to represent the SHORT vowel sound. Thus mail, instead of being spelled MAL, was occasionally spelled MEL; feet was spelled FIT. Read (1971) and Beers and Henderson (1977), it should be noted, had also observed this phenomenon on a limited basis. Table 1 represents both the early developmental spelling stages and the anomalies seen in abundance in the phonics-instructed kindergarten for the set of one-syllable words used in this study.

Insert Table 1 about here

Method

To test my observations more rigorously, I established some ground rules for my investigation. First, I decided to analyze only those spelling protocols that adhered to the phonetic stage criteria as originally put forth by Henderson (Beers & Henderson, 1977; Henderson, 1981), with the exception that I would code a word as phonetically

rendered even if the short vowel were correct (this allowed me to pursue my research question). For example JES was coded as a phonetic stage spelling since the consonantal treatment fit Henderson's "spelling by sound" criterion and only the vowel was conventionally rendered. Unmarked long vowels as in MAL and FET were easy to code "phonetic" - as every letter fit Henderson's criteria. Even nearest-SHORT-vowel substitution spellings of long vowel words such as MEL and FIT could be coded phonetic because no vowel marker was present.

Second, protocols were included only if 5 or more of the 10 words fit the phonetic criteria. Further, if only 5 words fit the criteria, the remaining 5 words had to be split between semi-phonetic and transitional stage spellings. These conditions met, I included the entire list in the analysis.

Third, in looking for 5 or more phonetically spelled words on a list, I only considered words with both boundary consonants and the vowel (cvc). Feet spelled FE was insufficient evidence to code a spelling as phonetic stage; I would have had to "guess" the child could hear the ending consonant based on his spellings of other list words. Once 5 words on a list were tagged "phonetic", however, as a sixth word I included feet spelled FE in the analysis, giving me a little more data to analyze for the state of the child's vowel knowledge. In actuality, of the 74 lists analyzed from both classes, 19 were included on the basis of 5 words fitting the criteria, and the other 55 lists were included because between 6 and 10 words fit the criteria. For both classes, 62 of the 74 lists analyzed were from Times 3 (February)

and 4 (May); only then were most of the children in the phonetic spelling stage. Having determined criteria for selecting relevant lists, the data from the two classes were kept separate for subsequent analyses, to preserve the possibility of discerning different instructional influences.

Classroom instruction was also documented as part of the larger study. Pertinent to this project were the dates of short-vowel instruction in the phonics kindergarten, and their relationship to the times of testing. No instruction had occurred by the first test point (September). By Time 2 (November) /ɑ/ and /æ/ had been taught; words containing these short vowels could be analyzed. By Time 3 (March) the remaining three short vowels had been instructed, so all list words could be included. The word-based teacher was less systematic in her instruction of vowels -- shifting back and forth between vowels, both long and short, throughout the year.

The remaining analysis was straightforward. Each word was noted and tallied if it contained what could be called a developmentally precocious treatment of the vowel. For example, dress spelled JES or JRES was tallied as a precociously correct short vowel spelling because it appeared at the phonetic stage. Mail spelled MEL was noted as an example of a nearest-SHORT-vowel-neighbor substitution (the very opposite but same intuition first noted by Read in 1971). Referring back to Table 1, the asterisked spellings exemplify precocious, correct short vowel spellings in otherwise phonetically rendered words, and intuitively spelled nearest-SHORT-vowel-neighbor renderings of long

vowel sounds. These spellings were tallied as influenced by instruction.

Results and Discussion

Figure 1 depicts the incidence of instructional influence in both classes. There is a clear trend towards correct spelling of short vowels in the phonics class when compared with the word-based class: 78% of the time, phonics-instructed children correctly spelled short vowels while they were otherwise in the phonetic spelling stage. This contrasts with children in the word-based class who correctly spelled the short vowel 31% of the time while in the phonetic stage. A z-test for comparing proportions from independent samples showed that the two percentages were significantly different at the .001 level (Ferguson, 1976).

Insert Figure 1 about here

Concomitant with this precocious spelling of short vowels, phonics-instructed children substituted the nearest-SHORT-vowel-neighbor for long vowels 17% of the time, while word-based instructed children made this substitution only 3% of the time. A z-test comparing phonics vs. word-based instructed children's use of nearest-SHORT-vowel-substitutions again showed the difference to be significant at the .001 level.

Remaining comparisons between the incidence of correct <u>short</u> vowel spellings vs. nearest-SHORT-vowel (or reverse) substitutions were

significant in each class at the .001 level. That is, despite differences in instruction, words with short vowels revealed greater instructional influence than did long vowel words.

The results of this study indicate a trend towards accelerated correct short vowel spelling with consequences for long vowel spellings on the part of phonics-instructed kindergartners. Given an instructional program in which the short vowel sounds are intensively rehearsed (about two weeks of direct instruction per short vowel) and constantly reviewed as new consonant sounds are introduced, it makes sense that a ripple in a traditional developmental spelling sequence might occur. This is particularly so when the developmental sequence was first identified in a preschool setting where no strong print-oriented instruction occurred (Read, 1971) and refined in a language-experience based first grade (Beers & Henderson, 1977).

The significant results in the phonics class raise three issues:

1) What was proposed as a "natural" developmental sequence (Henderson, 1980) may be heavily supported by how children typically learn to read, namely via word-based methods; given intensive phonics-based methods, the developmental sequence may be altered.

2) Despite my stated research interest in the possibility that phonics instruction may shape spelling development, the <u>specific</u> instructional influence shown here may be less interesting than the general phenomenon that instruction can delimit how children learn words. I think the power of instruction in general needs to be better gauged. Is it possible that phonics programs overly limit children's initial

exposure to vowel conditions in reading and spelling? Not only was the direct instruction in this phonics kindergarten program focused on single (short) vowel sounds, the word set used was completely comprised of short vowel words. These children's exposure to other than short vowels was limited in yet a third way because no free writing occurred. The only words the phonics-instructed children wrote were dictated short vowel words, or the short vowel words needed to complete worksheet assignments. In their first year of reading instruction these children were never posed the problem of spelling or reading long vowel words (except during my testing). Having said this, and having marshaled some evidence for instructional influence in spelling, it is also likely that we cannot precisely distinguish the influence of instruction from inferences children themselves make about the world of print. Nevertheless these findings and the experience of watching these children cope with a restricted symbol system (one without long or irregular vowel patterns) results in my questioning the value of artificially limiting vocabulary in early reading and spelling instruction.

3) Despite some specific measureable instructional influence pertaining to vowels in this study, the basic tenets of Read and Henderson's work seem unshaken by this evidence. Early in this paper I alluded to the idea that children's operating principle at the phonetic stage is one letter per sound (Henderson, 1980; Read, 1971). Nothing in the present study violates this principle. In fact, the important notion that early on children's spelling passes through a

phonologically determined stage (Read, 1971) withstands the instructional influence documented here. The kindergarten children in this study did base their short vowel substitutions for long vowel sounds on articulatory gestures, just as Read found children substituting phonetically nearest letter-names for short vowel sounds in 1971. In this study, the children turned to the instructed short vowels (instead of to the known long vowel names), perhaps because short vowel instruction had weaned them away from letter-name intuitions. Either decision pivots on an articulatory base. It is in this way, finally, that the results of this study potentially replicate the developmental spelling scheme.

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Table 1

Typical Spellings and Category Placement

Target	Semi-Phonetic	Phonetic	Transitional
FEET	FT FE	FET FIT*	FETE
MAIL	ML MA	MAL MEL*	MALE
DRESS	JS	JAS JES*	DRES
		JRAS JRES*	
		GAS GES*	
		GRAS GRES*	
		DAS DES*	
		DRAS	
STICK	SK STC	SEK SIK*	STIK
	CK	CEK CIK*	
		STEK SIC*	
		CTEK	
LAMP	LP	LAP	
RICE	RS RC	RIS ROS*	RIES
	RES	RIC	RISE
BEG	BG BOG	BAG	
RICH	RJ	REJ RIJ*	
		REG RIG*	
		REH RIH*	
JUNK	JC JEK JK	JOC JUC*	JUNC
		JOK JUK*	GUNK
		GOC GUC*	
		GOK GUK*	
COMB	CM KM C	COM CUM*	COME
		KOM KUM*	

*indicates anomalous vowel treatments in words otherwise phonetically spelled

Percent of Spellings Influenced by Instruction

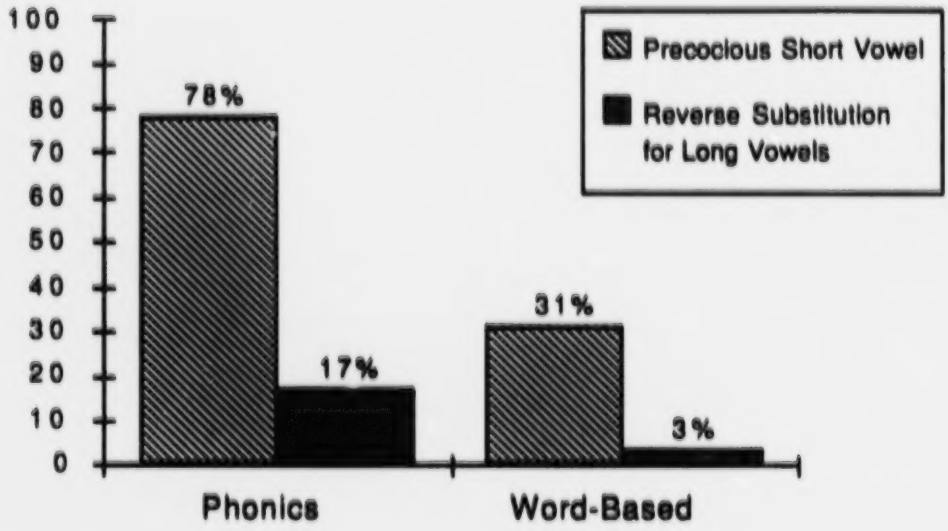

Figure 1. The incidence of instructional influence on long and short vowel spellings by class.